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“Like a Second Home”: Conceptualizing Experiences within the Fox River Watershed through a Framework of Emplacement

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Abstract: We propose and implement a new *emplacement* framework through exploration of the socio-spatial landscape of the Fox River Watershed (FRW) in Northeastern Wisconsin from a particular cultural perspective. Based primarily upon interviews conducted with 16 Hmong people to better understand and learn from the experiences of an important but overlooked FRW stakeholder group, we present our findings through the components of this framework: *displacement*, *misplacement*, *replacement*, and *emplacement*. Our research reveals that the strength of Hmong culture has persisted through tremendous loss and displacement, to survive and evolve in a new setting. The resettlement of Hmong people in the FRW has afforded relatively widespread access to landscapes that facilitate recreation, social interaction, and food production, enhancing physical and mental health and augmenting household incomes. It has also led to empowerment of women and the emergence of a generation of group members with formal ecological knowledge to add to their existing ethnobiological understanding and cultural foundation of ecological conscience. For such reasons, conservation organizations, policy makers, and departments of natural resources should look to build linking social capital between those in power and marginalized groups such as the Hmong.

Keywords: place; watershed; Hmong; cultural landscapes; social capital; environmental justice; interdisciplinary research

1. Introduction and Background

This paper presents a case study stemming from an applied, inductive, and qualitative research project conducted for a regional nonprofit organization dedicated to preserving the history and ecology of and enhancing the recreational opportunities in the Fox-Wisconsin river corridor in Wisconsin. The purpose of the project was to broadly explore the relationships between Hmong people and the Fox River Watershed (FRW), between a particular culture and a particular landscape, in the Oshkosh, Appleton, and Green Bay areas of northeastern Wisconsin.

Social inclusion is a key but often overlooked consideration in the discourses surrounding sustainability, conservation, and ecosystem management. Exclusion of the voices and perspectives of racial and ethnic minorities often results in incomplete understanding of socio-spatial landscapes (land + practices + meanings [1]), and missed opportunities to address threats to water quality and discover new vectors for environmental stewardship [2,3].

Inclusion of diverse groups has been correlated with biodiversity conservation and management [4] but difficult to put into practice. Governance processes related to urban river corridors

and their ecosystem services “need to accommodate a diversity of actors (and accompanying interests, visions, and opinions, as well as varying capacities and abilities) that may change through time, and link regional and city networks to local interests” [5] (p. 11). The mainstream environmental movement, however, “largely remains a practice that services established parks, prairies, forests, and wetlands—places often spatially and philosophically divorced from the urban or rural neighborhoods whose residents could also benefit from non-toxic, safe, and biodiverse green space” [6].

Indeed, in the U.S., racial/ethnic minorities, women, and low-income people are often cut off from the environmental “goods” that affluent, more powerful majorities often take for granted. The result is that people who find themselves in such categories are much more likely to be forced to live in unsafe areas characterized by environmental “bads” (such as polluted air and water, lack of access to healthy food, recreation, and open space) [7,8].

Hmong people are often invisible in the FRW, and their voices are often missing or silenced in watershed management. We use a new framework of *emplacement* to address these environmental injustice issues, to learn about and *from* Hmong people who are highly engaged in natural resource-related activities but infrequently studied by social scientists [9].

The paper proceeds with an explanation of our emplacement framework and some background about Hmong people and the FRW itself. Following this, we present our materials and methods to explain our recruitment of Hmong residents of the FRW and of participant-driven photo elicitation. Our results are presented through the framework elements of *displacement*, *misplacement*, and *replacement* in the FRW. We employ the framework of *emplacement* to discuss and synthesize the reconstruction of a cultural landscape in the FRW by the Hmong people, incorporating social inclusion, environmental justice, and watershed management. We conclude by suggesting that conservation organizations, policy makers, departments of natural resources, and justice advocates should look to build linking social capital between those in power and marginalized groups such as Hmong people.

1.1. Analytical Framework

Place is a much theorized and central concept in geography, and important to environmental and community sociology as well. Here, it forms the core of our conceptual framework. Place imbues meaning to space by enabling dialogue connecting physical spaces to specific environmental and human processes [10]. It exists at multiple spatial and temporal scales, understood through direct observation of processes and patterns, phenomenologically through individual experience, and as a complex hybrid: always emerging through interactions [11].

Biophysical systems including hydrology, soils, climate, biodiversity and biotic community structure are the foundations we use to differentiate environmental places and understand their meaning and importance. Further, the history of a place, including settlement, land use, migration and development tells the human story of how places come into being and change over time. Social systems, including political economy, culture, levels and types of social capital, and community are both rooted in and co-constitutive of these other dimensions of place.

Despite the ubiquity of place in the literature, a unified conceptual framework to systematically understand human-environment relationships by examining changes “in place” is lacking. To address this we assemble the sub-concepts of displacement, misplacement, replacement, and emplacement. Together these concepts form the interdisciplinary structure of our research, which we label the *emplacement* framework due to the synthetic character of the final component. We define each concept below.

Displacement: Displacement refers to exclusion and expulsion. Questions of displacement focus on **what** and **who** was uprooted in the past or is being uprooted currently. Places become out of balance and unsustainable when key components of social and natural ecologies are excluded or expelled from a place, either voluntarily or by force. In other words, displacement occurs when there is an “uprooting” of something that was rooted, be it wild edible plants pulled out for tree farms, a human

community, native prairies plowed under for agriculture, or local businesses that kept money and resources in a community.

Misplacement: Equally important to what was uprooted are the processes of uprooting. “Mis” suggests negative consequences, including the placement of misaligned entities, which can often be determined only in hindsight. It is in reflecting on the reasons for and consequences of the processes of uprooting (and misplacements) that mistakes become visible. Misplacement occurs when the presence of non-native species or people creates some sort of imbalance in an ecosystem or society; when urban development occurs in patterns that destroy ecosystems and impair human health; and when factories dump harmful chemicals into lakes and rivers. In our case, we can interrogate the process of human resettlement in a new place and the ramifications for social inclusion. As discussed below, the sociological concept of social capital is helpful in this regard.

Replacement: Replacement, the process of determining what and who should be in place, and how to root it there involves significant negotiation. From local environmental action to resettlement of refugee human communities, replacing intact and functional biotic and human communities requires significant consideration and study of environmental, political, economic and socio-cultural systems. If we assume that ecological imbalance and social exclusion have developed through processes of displacement and misplacement, replacement relates to the structural processes of returning long-term functionality to place. In our use of the framework in relation to Hmong resettlement, this component is rooted in culture, which produces the values that guide practices. Replaced populations may struggle in negotiating differences between their traditional culture and that of their new place. Given this, we find Casagrande and Vasquez’s [12] definition of culture as particularly useful: “the social relationships, moral guidelines, and historical trajectories of identity and practice that provide a template for continuous experimentation in how to live correctly” (p. 195).

Emplacement: We use the concept of emplacement to examine the effects and consequences of displacement, misplacement, and replacement. The word choice—an adaptation of a geological term—is designed to be encompassing of the processes related to the other elements of the framework and suggest a synthesis, as we examine the state of what has been put in place. Importantly, emplacement focuses on what has been newly brought into systems, but also recognizes actors that remained in place all along. When considering emplacement, we ask: are the new actors, human and non-human, rooting and taking place in ways that encourage the long-term functioning of places, ecologically and socially? What and who are the actors that have remained emplaced all along, and what is their role in long-term functioning? What is the nature of their interaction in regards to justice and power?

In this paper we focus upon understanding the replacement and emplacement of Hmong people in the FRW in the context of social inclusion, environmental justice, and watershed management. The emplacement framework is a broad, interdisciplinary framework that is meant to be adaptable and highly interdisciplinary. We further found that when considering the stories of Hmong people in the FRW, the understanding of our data was enhanced with the additional consideration of social capital.

Social capital, which has been divided into three types, can help shed light on how norms and relationships evolve in a new setting, and the implications for inequality and collective action. Bonding capital is common amongst homogeneous groups and helps them survive challenging circumstances, such as migration to and social marginalization in a new place [8]. It stems from the development of strong ties at the micro level, amongst people who are similar and interact regularly [13]. It can be “cashed in” during times of need (e.g., when people are low on food or need help with babysitting). Bridging capital stems from weak ties [13] at the meso level. It is an inclusive solidarity produced through less frequent, but strategic interaction between people from groups that are heterogeneous, particularly along race/ethnicity and social class lines, traversing such gaps through collaboration around issues of common interest in a locale. Linking capital emerges from more macro-level connections and “enables greater access to powerful actors, such as law enforcement officers, social workers, health care providers, NGO officials, politicians, and the public administration in general” [14] (p. 218).

In the highly segregated U.S., bridging and linking social capitals are much less common than bonding capital, and differential access to them (disadvantaging women and minorities, in particular) leads to reproduction of social inequality over generations [8,15]. Academics are not immune from such divides and have been routinely criticized for perpetuating power imbalances and marginalization through privileging their own voices and methods. One participant in a recent conference session in which an early version of this paper was presented, for example, lamented that a project with which she was involved was designed to restore an urban river corridor to benefit racial/ethnic minorities among other things, yet had not actually involved people from such marginalized groups in any meaningful way.

1.2. *Hmong People; Historically and in Wisconsin*

The people now known as Hmong have their origins in Southern China. Persecution from the Han majority and poor economic conditions in the early 1800s began to push Hmong people out of their homeland, their first major *displacement*. Meanwhile, the lure of economic opportunity pulled the Hmong further south into French Indochina, into modern Laos, Vietnam, Cambodia, and eventually Thailand by the 1850s [16]. In this region, Hmong people were able to successfully *re-place* themselves, establishing villages and seasonal migration patterns as they lived in relative isolation and stability in mountainous terrain, practicing swidden (slash and burn) agriculture and other subsistence activities [17].

Prior to the Vietnam War, the majority of Hmong people in Indochina lived in the Xieng Khouang province in Laos. The Vietnam (Second Indochina) War (1961–1973) impacted the Hmong in myriad ways, and in ways that are more complex than is often depicted [16]. The war brought tremendous hardship in the form of military involvement, excess death and additional suffering. The U.S. government, however, made significant efforts to keep its longstanding and extensive involvement in military actions based in Laos and Thailand out of the public eye. The “war effort was cheap because the vast majority of lives lost in Laos were not American, thus preventing the kind of anti-war outrage that events in Vietnam generated among a segment of the U.S. population” [16] (p. 30).

This “secret war” featured the participation of Major General Vang Pao and thousands of Hmong soldiers, who had been hired by the CIA. The results were devastating. “Approximately 40,000 Hmong men and boys fought as partners of the U.S., of whom nearly 35,000 were killed in battle, an incredibly high mortality rate . . . In all, the Hmong in Laos lost approximately a third of their total population during the course of the war” [17] (p. 2). Overall, the estimated 100,000 Hmong people who died during the war years included combatants and civilians who perished during the war and losses during the subsequent escapes to Thailand [16]. But the war also brought opportunities, including salaried jobs for men and women and an increase in the number of literate individuals [16].

When communists took over Laos and the U.S. pulled out in 1975, many Hmong people were forced to surrender or flee. Many were displaced from their homes and sought asylum in neighboring Thailand via the hazardous crossing of the Mekong River. Because a portion of the Hmong people had assisted the U.S. government, a significant number of Hmong people were allowed to migrate to the U.S. over the subsequent decades. As of the 2010 U.S. Census, there were approximately 260,000 Hmong people in the U.S., the fourth largest population of Hmong people in the world [18].

Wisconsin now has the third highest concentration of Hmong (49,240 people according to the 2010 census) in the U.S., behind California and Minnesota. Wisconsin’s 2010 Hmong population is nearly three times its 1990 level, growing by more than five times the state’s rate of growth between 2000 and 2010, and is spread across many of the state’s largest cities, with strong levels of replacement in the Fox Valley cities of Appleton, Green Bay, and Oshkosh, all of which are in the state’s top ten cities in terms of Hmong population.

Traditional Hmong culture features several characteristics that are distinct from mainstream, contemporary American norms, such as the common practice of a group of Hmong households migrating to the same place [16]. This practice leads to secondary, internal migration of Hmong

households after their arrival in the U.S. [17] and to population clusters in particular areas. Hmong are known as “one house people”, with very strong family bonds (*ib tsev neeg-ib tsev tuab neeg*, which literally translates as “one family household”) that often result in households with three generations living in the same house. Hmong culture is also marked by significant respect for elders by juniors and for husbands by wives. Hmong cultural practices include numerous “security measures” that protect women, but patriarchy was and is prevalent in the public sphere [16]. Inheritance of land and household does not follow a set pattern among Hmong people, and traditionally, agricultural lands were used collectively rather than owned individually, but due to the wars of the 20th century, many lost access to land for farming [16].

Nonetheless, the unique, intensive style of Hmong farmers in Wisconsin stems from their history of experimentation and adaptation to their surroundings, which taught them to plant certain species in close proximity to one another and often not in straight rows, but rather in thick patches. The long-time director of a well-known farmers’ market in Milwaukee observed, for example, that

Hmong farmers have discovered that leafy plants such as collard greens don’t like to be confined into orderly rows. They do better when they’re broadcast seeded into a random pattern that mimics nature . . . Hmong farmers have also figured out that pests are easier to control if you mix your tomato plants in with other vegetables all over your farm instead of confining all of them into just one section. [19]

Such practices helped to inspire urban and sustainable agriculture pioneer Will Allen’s design for Milwaukee-based Growing Power.

It is no wonder, then, that the move to land-rich, agricultural areas like Minnesota and Wisconsin resulted in the continuation and reinvigoration of Hmong farming practices. “Hmong landscapes are still notable for their agriculture, even within urban U.S. settings. These gardens have been described as ‘reconstructed landscapes’, where Hmong gardening knowledge, tools, techniques, and plant varieties are used to recreate the distinctly Hmong agricultural landscapes” [17] (p. 9). Padgham, Ivanko and Kivirist [20] discuss a partnership between European-American and Hmong farmers to keep the land on the family’s century-old farm in active production as an example of innovative farming, while highlighting particular aspects of the landscape of the FRW:

As you travel over the rim of the magnificent Niagara Escarpment and begin the descent into the historic Fox River Valley, the century-old Strenn farm lies before you like a treasured patchwork quilt. During midsummer the quilt is made up of numerous shades of green . . . Upon closer examination, other colors begin to appear. Ripening Thai hot peppers add brilliant pinpoints of red, orange and purple to the landscape. The maturing winter squash add shades of blue, salmon, orange and dark green to the mix. [20] (p. 43)

Brown County, the most populous area of the FRW and home to Green Bay, has experienced a drastic loss of dairy farms in recent years, as well as positive changes, such as cross-cultural partnerships that have kept some farms in production through European Americans leasing land to Hmong people and helping with plowing [20]. In addition to farming, “Natural resource-related activities such as hunting, fishing, and gathering edible plants are important cultural and economic activities for a relatively high percentage of Hmong” [9] (p. 878).

In the last several decades, Hmong people have become part of the fabric of the FRW, while places within it have played an active role in shaping Hmong life in this area. As elaborated upon below, it appears that Hmong people have in some ways produced a *reconstructed cultural landscape* [17] in Wisconsin as they engage in practices that are similar to those they previously carried out in Southeast Asia. At the same time, the landscape of the FRW has in some ways reconstructed their culture, helping perpetuate and reinvigorate Hmong traditional practices and introduce new activities and relationships.

1.3. The Fox River Watershed of Northeastern Wisconsin

The rivers of the FRW are also important to the context. The Fox River watershed is part of the larger Fox-Wolf River watershed and contains the Upper and Lower Fox River watersheds as well as many smaller ones. It is a unique watershed anchored by the *north*-flowing Fox River.

The Upper Fox River basin abuts the southern boundary of the Lower Fox River basin and includes several counties in northeast central Wisconsin (Figure 1a). It is 2090 square miles and contains all streams that drain into Lake Winnebago, where the upper Fox River watershed drains, and the lower Fox River Watershed begins (Figure 1b). The lakes that comprise the so-called Winnebago pool are key ecological, recreational, and economic elements of the watershed. They “combine to encompass over 166,000 acres of fresh water with everything from state park land to urban centers found along their shores. The lakes—Winnebago, Butte des Morts, Poygan and Winneconne—offer outstanding recreational and scenic values to residents and visitors alike” [21].

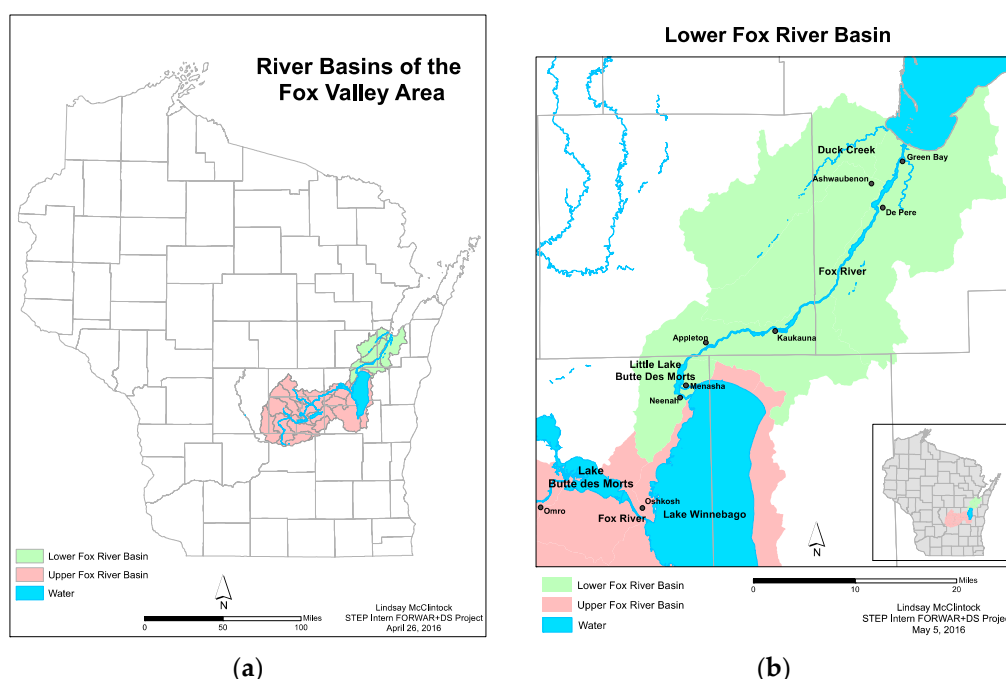


Figure 1. (a) Upper and Lower Fox River Basins and Fox River; (b) Lower Fox River Basin.

The Lower Fox River basin (Figure 1b) is a 638-square mile drainage basin located in Northeastern Wisconsin and encompasses the cities of Neenah, Appleton, and Green Bay. The city of Oshkosh, while technically part of the upper river watershed, also has significant lakefront on Lake Winnebago, making it a dynamic part of the watershed [22].

The Lower Fox River begins at the north end of Lake Winnebago and flows 40 miles to empty into Lake Michigan at Green Bay. The river drops about 164 feet over this stretch, and features a system of 17 recently restored locks. Historically, the elevation change encouraged industrial development and urbanization along this river section. Today, the restored locks make recreational navigation possible along the Lower Fox. [21]

The FRW includes five of Wisconsin’s ecological landscapes: Northern Lake Michigan Coastal, Central Sand Ridges, Southeast Glacial Plains, Central Sand Plains, and Northeast Plains [22]. The watershed is dominated by agriculture and development in the south and mixed hardwood forest in the northern areas. As with many landscapes in North America, the FRW has experienced major shifts in form and structure since European settlement. On land, ecosystems that once dominated (oak savanna, forest, prairie) have been highly disturbed or eradicated through human interference.

Wildlife populations have declined significantly due to hunting pressures and habitat loss. Similarly, the structure and form of human settlements and communities have shifted dramatically since the early 19th century, most influenced early on by the industrialization of the region driven by attributes of the Fox River itself [22].

For more than 150 years, “The Hardest Working River in the World” powered a large industrial base in the FRW, but little thought was given to the health of the river—any negative consequences were accepted as the necessary costs of progress [23]. From 1954 to 1971, the paper mills that lined the Fox River used polychlorinated biphenyls (PCBs) in the production of carbonless copy paper, with little regard (or knowledge) of the impacts of this chemical. Other industries located along the Upper and Lower Fox contributed to pollution problems in the river as well, and while the fishery of the Winnebago pool is currently healthy, a “dead zone” has developed in Green Bay, largely due to phosphorus run-off from farm fields and other non-point sources [24].

2. Materials and Methods

We used *participant-driven photo elicitation* (PDPE) and in-depth interviews to gather primary data for this study. PDPE—pairing photos taken by members of the population of interest with semi-structured, in-depth interviews about those photos—has been found to be an effective tool for conducting research and action around issues related to local environments and cultural practices [25]. PDPE encourages active engagement by participants, to get them thinking about the topics of interest prior to the interview and to serve as tangible, multi-dimensional stimuli for fruitful conversation. Incorporating photos helps produce deep interviews and shift the power from researcher to participant, yielding more ethical research and more valid data, including from socially marginalized groups [25–27]. Photos are also great for illustrating key points from participants and helping to bring their stories to life.

With the PDPE model as the starting point, we collaborated with project leaders from the Fox-Wisconsin Heritage Parkway to create a set of topical categories of relevance to the project. Below are the categories, as presented in a portion of the instructions given to participants, which were also translated into Hmong.

Step 1: *Take photographs* that represent your experience with and thoughts about the Fox River, in the following categories:

1. How you experience (use or interact with) the Fox River;
2. What Hmong culture and traditions are regarding the use of rivers/lakes—OR—what you *think* Hmong culture/traditions are regarding the use of rivers/lakes;
3. How your experiences with the Fox River differ from or are similar to your understanding of Hmong culture and traditions regarding the use of rivers/lakes;
4. What you value most about the Fox River;
5. Things that make it difficult for you to experience the Fox River as you would like to; and,
6. One photo that captures the essence (what it’s all about) of what the Fox River means to you.

The next step was to view the photos together with participants and conduct an in-depth interview. The goals were to have 15–20 participants that included a mix of Hmong people born here and born abroad, and living in Oshkosh, Appleton, and Green Bay.

Participants were offered a reusable camera and a \$10 gift certificate to a Hmong grocery store as an incentive. This project was reviewed and approved by University of Wisconsin Oshkosh’s Institutional Review Board and labeled protocol #972522: *The Fox-WI Heritage Parkway Hmong Voices Project*. Participants, who gave express permission for their photos to be used, took all photos presented herein. They gave informed consent and we pledged that their identities would remain confidential, thus here we refer to participants in general terms and have taken other safeguards to prevent identification. A number of participants were current students or recent graduates of this university, but according to UW Oshkosh’s *Fall 2015 Fact Book*, 595 undergraduate and graduate

students self-identified as Southeast Asian/Asian American. Further, according to the 2010 U.S. Census, there were 7645 Hmong people living in Oshkosh, Appleton, and Green Bay, so this is not a small, isolated population. Participants should therefore not be identifiable by people outside of the project.

Two Hmong undergraduate students served as research assistants, helping to design the project, recruit and interview participants, and add native Hmong speakers and cultural competence to the effort. We made a number of efforts to recruit participants by promoting the project on Hmong radio in Appleton, distributing flyers to numerous Hmong grocery stores, posting them in places frequented by Hmong people, and through direct contact. Unfortunately, these efforts produced few participants. Therefore, we primarily relied on snowball sampling to recruit interviewees. Though several participants were known to each other, two research assistants and the first author each recruited participants, with subsequent participants joining the project from snowballs that stemmed from these three sources, providing sufficient variation. We believe it is a valid sample.

We used the Nvivo qualitative data analysis software program to review and organize the data, code responses into common categories, identify themes, and systematically produce evidence-based conclusions. We discuss the key themes that emerged in the next section.

3. Results

Ultimately, we interviewed a total of fifteen Hmong residents of various cities within the FRW for the main study. We augmented with data from a related project to include insights about farming in the FRW from one other Hmong resident of the area, for a total of 16 participants (Table 1). As indicated in Table 1, our research participants form a relatively homogeneous group. However, the goal in this study was to gather rich, in-depth, detailed information, about a smaller group from a population of interest in order to reveal common narratives about experiences and perspectives to help to explain social phenomena, and we believe the data set presented here is sufficient for that goal, as explained below.

Table 1. Participant details.

Pseudonym	Gender	Approximate Age	Grew up	Occupation
Participant 1	Female	Mid 20s	Milwaukee	College student
Participant 2	Female	Early 20s	FRW	Office worker (college graduate)
Participant 3	Male	Early 20s	Manitowoc/ Two Rivers area	Security officer (college graduate)
Participant 4	Female	Early 20s	Milwaukee	College student
Participant 5	Male	Early 20s	FRW	College student
Participant 6	Male	Early 20s	California	College student
Participant 7	Male	Early 50s	Laos	Christian pastor (college graduate)
Participant 8	Male	Early 20s	Laos/FRW	College student
Participant 9	Female	Early 30s	FRW	College student
Participant 10	Female	Late 20s	Twin Cities, MN	Stay-at-home mom (college graduate)
Participant 11	Male	Early 20s	Manitowoc/ Two Rivers area	College student
Participant 12	Male	Early 30s	Sheboygan	College student
Participant 13	Male	Late 20s	FRW	College student
Participant 14	Male	Early 20s	Manitowoc/ Two Rivers area	Recent college grad looking for job in field
Participant 15	Male	Late 20s	Laos/FRW	Graduate student (college graduate)
Participant 16 *	Male	Early 40s	Laos/MN/FRW	Full-time worker/ small-scale farmer, some college

Note: * This participant was interviewed for the Wisconsin Farm Oral History project, in which two of the authors were participating during the same period as the main study, for which researchers obtained releases from participants following the common practice in the field of history, and not the typical informed consent, but we have maintained interviewee identity confidential here.

According to the 2010 U.S. Census, the Hmong median age of 20.2 was considerably lower than the state median age of 38.4, and in the U.S. overall, 43.1% of the Hmong population was under 18, compared to 24.2% of the total U.S. population [28]. The Hmong population is a young one in demographic terms, as is our sample. In terms of education, in Wisconsin in 2010, 47% of all Hmong people were enrolled in school, with 73% of those aged 18–21 being enrolled in college, and 12% of those 25 and older having completed a bachelor's degree [29]. The latter percentage is much lower than the statewide average overall, but consistent with the large portion of Hmong adults that work in the manufacturing sector in Wisconsin [18]. Further, several participants stressed the importance placed on education by their parents, who lived through the struggle of *displacement* and resettlement in the FRW. Our sample captures the perspectives of Hmong people who are enrolled in or recently completed their college educations, an important and growing component of the Hmong population. Finally, 42% of Hmong Americans are foreign-born [28] and about 25% of our sample falls into this category.

There are limitations to the data. The results are largely from the perspective of a relatively young, well-educated, American-born, male Hmong person from the FRW (see Table 1). Our interviewees are primarily second-generation Hmong Americans, but our sample does include several interviewees who were born in Laos. While we interviewed five females, the majority of interviewees are male. Most of the interviewees are in their early-to-mid 20s, while our sample also includes area Hmong residents of various older ages. Hmong people in the U.S. are not a monolithic group, so data from an older sample, one with more women, or from people resettled in different areas of the U.S. may have produced different results. We recognize that our sample may not be representative of Hmong people as a whole, or even Hmong Wisconsinites, but find it to be informative nonetheless.

Further, not all participants took photos, but those who did shared 55 photos with us and generally reported that they greatly enjoyed it. For example, Participant 4 noted, "I really enjoyed it. It's a time for me to get to express a part of myself I don't really get to express because it's not the same interests. When they talk about their stuff I just sit over here like, 'okay.' It's a very good experience. I got to say who I am. I'm a female capable of these things." For participants that did not take photos, the six photo categories worked well as our interview guide, which we augmented with extensive probing. We made audio recordings of the interviews, which yielded 12 h of narrative. Interviews ranged in length from about 17 min to 70 min, averaging 48 min in length. As expected, those based upon photos taken by participants were generally a bit longer and more in-depth than those without.

The PDPE method proved effective at drawing out perspectives and providing a sense of empowerment. It also brought various elements of the watershed to life, from recreational uses to consequences of pollution. It engendered direct engagement with relevant sites and the multi-layered nature of photos captured both ecological and social meanings.

Next we present our substantive findings, briefly touching upon *displacement* and *misplacement* to provide context for our deeper analysis of Hmong *replacement* in the FRW. Because of its encompassing character, we save the synthesis of our data, via the concept of *emplacement*, for the subsequent discussion section.

3.1. Displacement

In our framework, displacement focuses on what has been uprooted and excluded. This is a central theme in the lives of Hmong people in the FRW and while we do not report the details here, our data includes many references to and stories about displacement. For our participants, either they or their older family members were uprooted and violently displaced from their homelands by war, eventually arriving as refugees in the FRW of Wisconsin. This is consistent with the longer story of Hmong people being uprooted, displaced, and seeking a home [16,30]. The "uprooting" of family members from one another was also discussed by some participants in our case study, while others lamented displacement from their homeland, a landscape defined by tropical highlands and a great river, which formed a foundation of their culture.

Hmong people were displaced from a lifestyle rooted in the land as soon as the war started in the early 1960s, an underappreciated aspect of their people's history [16]. Finally, Hmong people have also historically struggled with forms of exclusion in the societies in which they reside, the most drastic being the persecution that resulted in their displacement. While most participants did not report negative inter-cultural interactions in the FRW, some did discuss experiences with exclusion and racism.

3.2. Misplacement

Misplacement focuses on the broader process of and reasons for uprooting of people or species. The transition into American life has included significant struggles for Hmong people and our data includes extensive discussion of the trauma and difficulty experienced by participants or their family members, which emerged from discussion of the Mekong River and Hmong traditions with rivers. Some told dramatic stories of their own escape, while others repeated what they had been told, such as Participant 1, whose mother told her that she had to swim across, noting bluntly, as she recalled it, "People swam across the river. Some made it, some didn't make it." This was obviously a traumatic experience for many Hmong families. Because of the trauma associated with the Mekong River and spiritual traditions related to water, some older and/or more traditional Hmong people feared rivers, while most in our relatively young sample indicated that they did not.

A consequence of displacement mentioned by several participants was that because of trauma or changing circumstances in the U.S. related to livelihood or housing type, some Hmong Wisconsinites seemed to have generally lost their connection to the land. By far the most frequently mentioned concern by people in this sample was pollution of the river and the litter that they come across along its shores, which some saw as consequences of broader displacement. Others feared the loss of Hmong culture itself, which has historically been very rooted in the land. Several participants discussed the process and consequences of social exclusion in the FRW.

Much more can be written about misplacement and the processes and consequences of uprooting from our data, which we intend to do through a separate paper. Our focus here, because of our focus on environmental justice building and social capital, is on the final two components of the framework. In the next section, we present our findings related to replacement, which reveal the strength of Hmong people and ways in which a culture has adapted to a new environment in the FRW, for the benefit of both their group and the watershed.

3.3. Replacement

In short, we conceive of replacement as the process of determining what and who should be in place, and how to root it there, which involves significant negotiation. In this section we discuss replacement by presenting data about Hmong resettlement, fishing, farming, general recreation, gender identity, and ecological knowledge and conscience in the FRW.

3.3.1. Hmong Resettlement

Hmong people have been replaced in Wisconsin for several decades, starting in the mid-1970s, after churches and social service agencies sponsored veterans of the secret war. The first two Hmong families came together in 1975–1976, with one moving to Wausau and the other settling in Appleton [31]. The FRW, therefore, has been a site for Hmong settlement and culture in Wisconsin since the beginning of American resettlement programs.

The three largest cities in the Fox Valley (Green Bay, Appleton, and Oshkosh) all have a significant number of Hmong residents, who represent an important source of diversity in a region with a history of racial exclusion [32]. In areas like the Fox Valley, "the Hmong stand out more singularly as an ethnic minority than they do in metropolitan areas like Milwaukee, which is already more racially and culturally diverse" [17] (p. 3). Christian et al. [17] reported that in the three principal counties (Brown, Outagamie, and Winnebago) of the Fox Valley, the population of nearly 600,000 was 89.6% white,

making significant the fact that Hmong people comprised 4.6% of the population in Appleton, 3.4% in Green Bay, and 2.5% in Oshkosh.

A large portion of the data from this study relates to how Hmong people have experienced the FRW, how they have developed senses of place in this new setting, and the inter-cultural and intra-cultural negotiation this entails. As discussed above, abstract space is transformed into tangible place through meaningful experiences within it, and consistent with traditional Hmong culture and its emphasis upon mutual aid and cooperation, this has been largely a group-level phenomenon. Our data also reveal more modern, individual forms of place development on the part of participants, but a resounding theme is that, whether they necessarily realize it or not, most participants discussed engagement in the FRW that is consistent with Hmong traditions and which yield not only bonding between family and friends, but also introduction to others, both Hmong and non-Hmong.

The first category for the PDPE process was how the participant experiences (uses or interacts with) the Fox River. Most participants reported regular or frequent interaction and while we did not explicitly define the geographic parameters, participants captured places and experiences from a wide area of the FRW, not only from the Upper and Lower Fox River itself, but also the Wolf River and lakes from the Winnebago Pool, making the data highly applicable to the watershed scale (Table 2).

Table 2. How participants experience the Fox River.

Use	# of Participants Using in This Way	# of References
Fishing	12	80+
Walking and Hiking	9	17
Canoeing, kayaking, boating	6	7
Viewing scenery	4	7

3.3.2. Fishing

Indeed, water has helped Hmong people to become embedded, or replaced in the landscape of the FRW. As presented in Table 2, fishing was mentioned by almost all participants as a primary way in which they interact with the Fox River. Even the three participants who said that they do not currently fish discussed fishing extensively.

Several participants who focused on fishing indicated that they spend a good deal of time doing so. Participant 10 explained, “We try to go once a week when my husband’s off . . . on the weekends or at least every other weekend.” Participant 3 indicated that he fished, “probably every other day during the summer. I probably walk out there and enjoy nature even if I don’t catch a fish.”

The most important reason for fishing given by participants was the interaction with friends and family that it facilitates. The tendency for Hmong people to fish in relatively large numbers and close proximity was frequently discussed.

The photo in Figure 2 was taken west of Oshkosh near the Eureka Lock and Dam in the FRW, which is a popular fishing area that becomes a Hmong hotspot during the seasonal migration of white bass. Participant 3 took it to capture a tranquil social-natural scene: “One of them had a guitar and it was a way to get away from the sounds of the city. . . . A little boat landing that we just sat down at and watched the sun go down. This really captures the benefit that we have of living next to the Fox River.” Similarly, Participant 4, the most avid fisherwoman in the sample, took the photo in Figure 3. Echoing the sentiments of a number of participants she explained,

I have such a big family and we all like to fish. That’s what it looks like when we go fishing, just a whole line of us. It’s so funny to me . . . It was a very, very cold day. Despite the weather, we’re willing to be out there, interacting . . . It just creates a stronger (bonding) between the siblings and the parents.

A key theme from our data is the building of these relationships, in this nature. It may be a very different landscape than their homelands, but the results were nonetheless very special to participants.

Others noted that fishing in the FRW facilitated interaction with not only close family and friends, but also with strangers (to whom they might actually be related). According to Participant 6,

If they want to catch fish they'll come right next to you . . . A lot of Hmong people like fishing a lot. That's how we start out conversation. Then it leads to background, where we came from, they always ask what your dad's name and last name is. Through that they can tell where you are and where you came from. Just through fishing you could start a conversation so easily.



Figure 2. Sunset on the Fox River.



Figure 3. Hmong people fishing in a line in the Fox River, Oshkosh.

For Participant 7, a pastor living in the Fox Valley for a decade, fishing with his father was an important part of his childhood in Laos. He had not yet gone fishing in the FRW himself, but still enjoyed interacting with Hmong people when they were fishing. According to him,

When I have a chance I ride my bike up there and talk to these people (in a local park) . . . In the nice weather, it's packed with Hmong people there . . . When you're fishing, you have some time. You can

talk about how you're doing and, 'How's the kids? Or work?' It's bonding time and fellowship. Therapy too! If I'm depressed about some other thing, I can talk to some other person fishing. Maybe I can realize that my problem is not as worse as his!

Fishing also facilitated contact with actors who have lived in the FRW area longer. Several participants expressed mixed feelings and varied experiences as they negotiated their place in the FRW. Discussing his interactions with non-Hmong anglers, Participant 10 noted, "I mean, you'll get a few that doesn't seem really interested in having a conversation but for the most part we do meet very friendly people." Participant 4 seemed to agree: "I think because it is open water, everyone can fish. Sometimes they'll be there all day and we'll come and they'll be like, 'Wow, you guys are so good at fishing.' Sometimes we make friends."

She continued, however, "Sometimes because there are so many of us, they tend to get irritated . . . Also, because we're such loud people. We're scaring all the fishes away." Participant 3 noted, "I've never got into any altercation . . . (but) I've heard of them . . . Nothing like that has ever happened to me. I like talking to other fishermen. Maybe they could teach me their technique."

Others discussed the importance of fishing in terms of the time it allows them to spend with their spouses and children and additional benefits this brings, such as broader connection to the natural world and socialization. Participant 15 recently began fishing more seriously and noted, "I started going out with my first cousin to fish there. Then later I brought my family there to hang out and to fish and to start using the river system and explore around there." Participant 10, a young mother of four, explained that if they could afford it, they would love to have a boat, but, "That's why we fish is because basically since we can't be on the river it is still another way to enjoy the river from the side by fishing. Fishing is just so relaxing and peaceful . . . and it teaches patience."

Some participants explained that they enjoy fishing for the fun and exercise that it brings. Others focused upon the interaction with nature and practices that help keep Hmong culture and traditions alive, even if they do not always realize it. Participant 11 explained, "I used to play a lot of video games and I was always inside. I kind of cut back on that by going outdoors . . . There are fishing spots where it requires a lot of walking and exercise to get to that one spot like the Wiouwash Trail." Participant 4 explained, "I first started out with lazy fishing until I started bass fishing. That's where the real action happens. So exciting, especially top water." She further reflected, "It helps us value nature more . . . We're all in the city so much . . . You really get that feeling of getting out in . . . nature and the environment."

Participant 4 continued, "We get our food from nature. Everything that we have comes from the environment and nature and without it we won't have anything." She was one of many participants who discussed the importance of fishing as a source of food, arguing that it shows that, "It's possible—you have to find your own food instead of going to the grocery store." She and others also focused upon the particular types of fish they target. Participant 6 noted, "Whenever I have time or . . . I usually go to the Fox River and cast a few times, catch a fish, and cook it and eat it . . . Mainly I fish for white bass. They're just a really good food source I guess."

Participant 5, like a number of participants, reveals his selectivity here: "The only fish I really keep personally is crappies, walleyes, and white bass." Several participants further asserted that Hmong people target white bass—which many white anglers seem to avoid—for multiple reasons (Figure 4). Some argued that it was because of the ease in which they can be caught, including on two hooks at a time during the "frenzy" of their seasonal runs through the FRW. Others pointed to Hmong traditions, as white bass tasted for some like particular fish back in Laos, or because of the mutual assistance that is a hallmark of the culture. As Participant 3 noted, "We like to eat our white bass. All the fish we don't keep to ourselves, we give it to our relatives, our friends, our family, our local church."

Interestingly, two fisherwomen in the sample mentioned their enjoyment of fishing for and eating carp, which is generally considered an undesirable, "rough" fish that damages the fishery of the FRW. According to Participant 1, "Carps are . . . I don't know how big they are. It's pretty much a struggle just to reel them in. It's fun, a great experience. Then you eat them . . . I think fish *la* is good . . . Yeah, kinda like minced up fish meat. *La* seasoning. Fish, cilantro, green onion, I think they throw lemon grass in there . . . fresh fish is always good" (Figure 5).



Figure 4. White Bass.



Figure 5. “A struggle to reel them in.”

Participant 11, like several people, noted that he typically practices catch-and-release, eating a limited amount of fish because of concerns about pollution, another element of negotiation as Hmong people deal with the complications that come from practicing their culture in a new place. Participant 10 noted, “Well, there was a sign that was posted that, you know, the fish was not safe for eating or not much consumption was good for women and children . . . Yeah, so we just don’t eat them. We just fish for fun.” Such practices are not necessarily consistent with historical norms, but are nonetheless part of a long tradition of fishing. Participant 3 was struck by the legacy being transmitted to him through this activity:

For me, I just have more different instruments to use. My ancestors used fishing poles made from bamboo sticks. Now I have all these nice fishing rods that are like \$150. All these reels and lures that I have. And the knowledge to know how to use them. What really spiked my interest was the knowledge that this has been going on from generation to generation. It’s definitely a Hmong thing . . . I think if my parents and ancestors did not know how to fish, I wouldn’t really care about fishing.

Participant 6 was generally a low-key interviewee who practiced brevity in his answers, but he had much to say about the transmission of culture through engagement with the FRW:

I remember I was fishing and an older guy came up to me and was telling me stories about back then when they lived in Laos . . . When they come to Oshkosh and catch so many white bass it reminds them of those good times where they used to go catch so many fish. And how good the food is . . . I learn a good deal of our culture . . . How good those times in Laos were. They like to refer back to their villages. Certain areas where they would go to the same spot where they would get water or vegetables.

3.3.3. Farming

The rich agricultural lands of the FRW have also helped Hmong people reconnect to place and each other. A number of participants discussed this and saw their group's farming practices as directly tied to the FRW. Participant 9 noted, "I guess for life everything revolves around water . . . 'Course my mom gardens so the water that they use comes from the lakes and the rivers." Participant 3 took a photo of a vegetable patch (Figure 6) and explained it as follows: "That garden is my roommate's girlfriend's mom's. From that garden she takes all the vegetables and sells it at the Farmer's Market here in town . . . They actually use the water from the Fox River to water their own plants."



Figure 6. Water is life.

Hmong people in the FRW have become prolific producers of produce, flowers, and more, and comprise a significant portion of all vendors at area farmers' markets. In Oshkosh, for example, Hmong people are 13% of all vendors, but 35% of the 88 total agricultural vendors [33], while 28% of all vendors at the Downtown Green Bay Saturday Farmers Market are Hmong [34]. Such activities are important to household livelihood strategies but seem to have significance far beyond economics.

According to Participant 16, who sells his produce at the Oshkosh farmers' market, farming allows him to spend time with his family and learn to keep Hmong traditions alive: "Well, my parents were always farming . . . back in Laos so when we came out here you know this stuff brings out their tradition like farming. So, we just picked up from there." This participant and others noted that Hmong people worked together to grow and market their food. He indicated that, "we ask our neighbors to help plow because it's hard for us to just do our slash and burn that we did in our country." He continued, "That's something that's changed us but everything else has been done again by our own hands . . . pretty much the same [as in Laos]."

As discussed, Hmong people are known to grow plants and vegetables in thick patches, using intensive, symbiotic practices that apply ethnobotany and integrated pest management. Such practices may seem unusual to many European Americans in the FRW.

3.3.4. General Recreation

Hmong people also experience the FRW in ways that are likely very similar to those of other area residents. Two females from the sample bluntly noted that they mainly experience the river by walking

or driving over it on bridges. Others mentioned that they enjoy canoeing, boating, and kayaking, such as Participant 8, who indicated that kayaking with friends at UWO was the only way he had truly experienced the river. Participant 4 noted, “Other than fishing, we like to go and canoe . . . recreational, fun activities with families. It creates that strong bond.”

Several other participants indicated that the primary way they experience the FRW is by hiking, walking, or biking along it for recreation or relaxation (Figure 7), activities that are more typically American and individualized. Participant 1 noted that, “Just walking along the trail is calming for anyone I guess.” Participant 8 said, “I use it for viewing the beauty of the river. Sometimes I take a walk by the river,” while Participant 13 noted, “There is actually a trail that run by my house. My wife and I along with my nieces and nephews use that trail to go running near De Pere and Allouez.” Participant 5 also emphasized the peacefulness of the river, “some days if I go fishing, I don’t care whether I get fish or not. Whenever you’re by the river, it’s not very hot. You always kind of get a breeze—I like that . . . I just think it relaxes me. Whatever is ticking me off it kind of goes away . . . It’s more of just a psychological therapist, I guess.”



Figure 7. Relaxing by the river.

This is one of several mentions in the data of the river being therapeutic. Participant 2 alluded to receiving similar benefits, noting, “It’s kind of hypnotizing in a way. There’s nothing going on.” Participant 8 saw it similarly, noting that he walks along the river “To get some fresh air. To relieve some stress . . . It’ll make you feel better.”

3.3.5. Gender Identity

Gender issues also emerged as important in our discussion of fishing and traditional Hmong culture. We had an oversampling of males interested in discussing their relationship to the Fox River, and participants, like Participant 2 in the following quote, commonly indicated that one gender is more heavily involved with fishing. “I just don’t find it enjoyable. I think it might be the fact that I’m not that good at fishing. I don’t know how to attach bait. But, um, no, my sister doesn’t fish. My mom doesn’t fish either; I don’t think I’ve ever seen her fish at all. It’s mainly guys in our family.”

When asked whether his mother and sisters fish, Participant 11 replied, “They don’t fish at all but I have taken my little sister fishing at County Park and she enjoyed it. Sometime when my father goes fishing, my mom would also go along. Yeah, she is not that great. A little slow to react to the fish biting.” Participant 15 indicates that some foreign-born Hmong people are avid fisherwomen, noting, “My mother actually likes to fish.” While his sisters do not fish, his wife does, which is strategic to his own goals: “My sisters, I haven’t seen them fish yet but my wife, whatever I try to get into such as

hobbies, I tried to incorporate my family and wife in there so that they would be more likely to allow me to go fishing."

Multiple female participants described their keen interest in fishing, and for one in particular, this was the focus of her discussion of experiences with the Fox River:

For me, I grew up with all the boys and I'm down for it. I'll touch a worm and my sisters are like, 'do it for me!' I'm like, 'No, if you wanna fish, do it on your own.' We have a competition. They can ask a guy to go with them to put the bait on and I'm like, 'No!' If they want to win or really fish they have to learn to do it on their own. What's the point of fishing when you won't even touch the bait?

Participant 4

Participant 4 presented three different photos that represented her experiences with the Fox River and important elements of her own identity. Describing Figure 8, she explained,

It says I'm not scared to explore . . . I'm a female but I'm not just interested in shopping. I can wear sneakers and rock them while being outside and enjoying what typically guys do. Women can do that and still be good at it. Not only that, but the sneaker does play a really big role. Imagine the sneakers being heels, what does it say? Oh, a typical girl at the lake, thinking about shopping and her boyfriend, being sad. It really does! And the sneaker says oh, she's really out there enjoying fishing. Actively doing it. Not just wearing heels and taking pictures. I'm just focusing on myself. Every aspect of being out by the river. Me as an individual. Who I am.



Figure 8. "Who I am."

She also showed us a photo of her pink Crocs against the background of an area lake, noting, "what girl fishes? As a fisherwoman I am really proud." Younger Hmong people, with perhaps less traditional views, have begun to socialize younger and older friends and relatives into fishing, including women. Though it reveals some patriarchal sentiment, this passage sheds additional light on the subject:

All of my friends go fishing, even the ladies. Some of my friends didn't fish when they first met me. I introduced them to fishing . . . My mom, my aunt, my sisters. They started out not liking to fish. We take them out a lot and they're not as crazy as me, but they know how to tie a fishing lure and know how to use it to their own advantage. So yeah, I taught them well!

Participant 3

Our data allude to the potential for engagement with watersheds to help facilitate perhaps subtle shifts in gender roles amongst resettled, re-placed populations like Hmong people, though this should not be overstated given the patriarchy and stratification that persists in broader U.S. society, which may have in other ways created new, or exacerbated existing gender inequalities amongst this group.

3.3.6. Ecological Knowledge and Conscience

“The Fox River is like a second home. Like Oshkosh is the city for me, it’s home. But then it wouldn’t be Oshkosh if it didn’t have the Fox River in it” (Participant 8). As suggested here, the relatively young people in our sample generally seemed to value the Fox River and be committed to its protection. Figure 9, according to Participant 2, “is them trying to restore some prairie plants out there . . . I personally think they should have more of these set aside wildernesses. Or just more diverse plant life areas . . . I like it messy and there’s beauty to it.”



Figure 9. Wild spaces.

Participant 10 expressed similar values in her explanation of Figure 10:

I see the river I love, me and my husband love birds . . . we live by Heckrodt wetlands . . . so we’ve taken our family there quite a few times . . . the birds there are just amazing you know: hawks, birds, and eagles, whatever . . . [The river gives me] peace from every day, just a break, you know, from every day responsibilities, life, stress . . . that’s kind of my peace of mind. It is like taking a deep breath of fresh air . . . It’s like you become small but when you become one with this whole thing . . . just the fact that you know there is life, I guess, and that everyone, every life is actually quite similar whether you’re an animal or a person . . . Respect it . . . Yeah and children their minds are not that broad in spectrum yet. But I tell them about how I’m feeling about the nature . . . so hopefully that I will help impact a difference to them too.



Figure 10. Respect for wildlife.

Participant 8 reflected, “I think about the animals that live in the river. If I lived near the river I would want it to be clean because I care about the animals that live there.” Participant 3 attributed such respect and sense of responsibility to his Hmong culture, which he saw himself as perpetuating, while lamenting the fact that many of his peers had not retained it:

Their parents weren't really intact with their Hmong culture. Their kids don't know how to fish or how to garden really. I guess you start losing that aspect of your culture that you're supposed to interact with nature. Nature is your friend or brother or sister. You don't do anything to harm it. You care for it and know how to use nature to your own benefit.

Participant 11 noted, “I love the outdoors especially learning about the ecosystem and learning how it works together ... Hopefully I can get somewhere with the DNR.” Similarly, Participant 2 argued: “We take education very seriously and we appreciate the opportunity to learn.” She added, “I just want to be able to teach someone something or implement practices that are more environmentally friendly.” Participant 14 recalled his time working in the field for the DNR:

It was nice because I was teaching these older Hmong people ... (who) just wanted to come out on the water and bring their families to have fun ... I would talk to them and explain to them about the rules and regulation about cleaning up their boats. I would explain about the fines if you didn't clean your boat correctly and the older Hmong folks would clean their boats nicely after that. I really think I made a difference ... I actually want to see some regulations to be translated in Hmong.

Numerous participants also advocated for additional Hmong signage that would educate people about fishing rules, the risks from eating fish caught in the river, about how to avoid the spread of invasive species, boating safety, property regulations, and even ecological features of the FRW. When asked if such signs would provide benefits, even for people like her, who could read English but not the Hmong language, Participant 10 replied “yeah, I think it would. They would recognize it is Hmong. If they know the written language they'll be able to read it, but I still think it is the feeling of being included or just knowing that they do recognize that we use the river, too, and we're part of it.”

The recognition and respect such education and signage could engender for Hmong people would be symbols of progress towards broader inclusion in the culture of the FRW, according to our participants. Further, as illustrated in this section, the PDPE process focused on the watershed scale has yielded numerous details about particular places and suggestions for improvement within the FRW, as well as important sociological considerations, which can serve as guides for conservation-related action.

4. Discussion

Here, we focus on using the concept of *emplacement* to discuss the overall consequences of Hmong *displacement*, *misplacement*, and *replacement* in the FRW. Consistent with the interdisciplinary nature of the framework, we use concepts from geography, sociology, and ecology, and other disciplines to heighten our understanding of the implications. In this section we discuss the reconstructed cultural landscape of Hmong people in the FRW, issues related to social inclusion and environmental justice, and applications to watershed management.

4.1. Reconstructed Cultural Landscape

Examining their *emplacement*, the state of what has been put into place in the FRW overall, Hmong people have in some ways produced a *reconstructed cultural landscape* [17] as they engage in practices here that are similar to those they previously carried out in Southeast Asia. The FRW has played an important role in their cultural reproduction: “cultural transmission of ecological knowledge through moral narratives, intergenerational bonding through ritual interaction with landscape elements, patterns of subsistence, and shared norms of reciprocity and redistribution of resources” [12] (p. 196). We have presented evidence of all of these elements of Hmong cultural

reproduction above. At the same time, interaction with the landscape of the FRW has in some ways helped to reconstruct Hmong culture.

Fishing and farming activities were frequently cited as providing direct and meaningful connections between contemporary Hmong people and their heritage. Both activities appear to not only provide fertile ground for the transmission of culture and even language from one generation to the next, but also connect to the deep cultural desire of Hmong people to be self-sufficient [16].

The war disrupted the agrarian lifestyle of Hmong people, starting five decades ago. One of our key findings is that their emplacement in the FRW has helped to revitalize it. Hmong people throughout the Fox Valley generally utilize small-scale, intensive, and chemical-free growing practices consistent with common notions of sustainable agriculture. Though it may not necessarily be visible to the wider population, access to fertile farmland has facilitated the creation of a hybrid Hmong/Upper Midwest landscape in the FRW. Many respondents discussed aspects of cultural loss stemming from the resettlement process, but overall, our study confirms the deep appreciation of nature and the perpetuation of traditions and practices in numerous ways through emplacement and consequent reconstruction of a Hmong cultural landscape in the FRW.

This includes not only persistence of culture but also change. Many Hmong people enjoy fishing in large groups and working together, including through sharing the harvest of fish. Some attributed this to its roots in historical practices, while others indicated that it might have as much to do with a marginalized group feeling comfortable together. In either case, it is clear that Hmong people place a great value on the social interaction that results from fishing and otherwise spending time in FRW.

Many participants, however, indicated that they particularly enjoy active sport fishing. Further, several participants primarily enjoyed the FRW through activities such as walking, biking, canoeing, and simply relaxing with the river in view. The local landscape (land + practices + meanings) appears to have led Hmong people to incorporate new practices into their engagement with the FRW, signs of cultural reconstruction in this new setting. For example, it may be less common for women to fish, which is understandable given the patriarchal nature of traditional Hmong culture (and that of the U.S. as well), but our sample includes multiple participants who are avid fisherwomen, which hints at a slight cultural shift being facilitated by engagement with the watershed. Socialization can encourage greater gender equality in fishing and the many benefits reported by those who fish. Higher education has also led to additional cultural adaptations as discussed below.

4.2. Social Inclusion and Environmental Justice

Our data suggest that some Hmong people may experience environmental injustice in several ways. For example, the substantially higher poverty rate of Hmong Wisconsinites combined with a land use and tenure system dominated by exclusive private property limits the access of Hmong people to agricultural, fishing, and hunting grounds, a likely contributor to some conflict between Hmong and white land users and frustration expressed by some of our participants. Based upon our data it appears that Hmong and non-Hmong anglers in the FRW generally tolerate each other and at times are friendly, but generally do not produce bridging or linking social capital. Tension between Hmong and non-Hmong people was reported and multiple participants, in fact, discussed direct experiences with race-oriented conflict. Given the history of the Chai Vang case (a deadly confrontation between a Hmong hunter and several white hunters in Northwestern Wisconsin that was mentioned by multiple participants) and several other high profile, race-related tragedies, such issues should be taken very seriously.

Further, Hmong cultural foodways (e.g., eating relatively large amounts of mercury-tainted fish and not necessarily understanding the risk involved) have put some at risk of illness. While younger and more educated people may be more likely to limit their intake of fish from the river due to warnings about the potential hazards, cultural traditions related to the consumption of fish are strong and the related practices will not be easily altered, even when education in this regard takes place.

However, there are additional signs of progress in the reconstructed cultural landscape. Hmong emplacement in the FRW has led to direct connections to the land being maintained or even newly established through small-scale farming and direct-to-consumer sales. This has not only helped Hmong people build strong ties that lead to bonding capital, but also to emerging weak ties outside of their culture, as the local context of the FRW has fostered some collaboration amongst white landowners and Hmong farmers, and relationships between them and their non-Hmong customers. This demonstrates the potential for the further development of both bridging capital and sustainable agricultural practices, which appear to have much wider applicability. As noted, Growing Power founder Will Allen (an African American) credits Hmong farmers for teaching him the principles of small-scale, intensive agriculture, which he has utilized to broad acclaim and replication around the world [35], including in Oshkosh. After being trained by Allen down the road in Milwaukee, a young, local woman founded the urban farm Growing Oshkosh in 2012 on a reclaimed brownfield next to the mouth of the Fox River (Interestingly, Hnouqou Vang, first research assistant for the Hmong Voice project, was also the first intern at Growing Oshkosh). Several similar operations, also no doubt influenced by Growing Power's approach and success have started in the FRW since then, but with little direct involvement by Hmong farmers, likely due to a combination of factors, including a lack of capital(s) and cultural traditions around agriculture (e.g., it being seasonal, done outside, and supplementary in nature). Additional research should focus on factors that lead to the building of bridging and linking capital that yields inclusive, successful outcomes in areas such as sustainable agriculture and conservation.

4.3. Watershed Management

Hmong replacement in the FRW has produced interesting adaptations and changes. Further, while it may not be well recognized, we would argue that the *emplacement* of Hmong people in the FRW contributes to the sustainability of the watershed and region.

Hmong people have already influenced sustainable food production in Wisconsin and have much to teach all of us in an era of dwindling resources and increasingly crowded cities. As noted, Hmong farmers have proven to be very skilled at a type of agriculture that not only builds social capital because of its highly intensive nature, but also uses ethnobotanical knowledge and practices that produce robust yields in a small space, generally without the use of chemicals. Wider adoption of such practices may allow for more extensive habitat conservation, ecological restoration, and social/recreational space in city and countryside, while improving water quality due to reduced agricultural pollution. This is highly relevant to the FRW, with its dead zone in Green Bay due largely to non-point source pollution, and throughout a nation dominated by industrial, chemically intensive agriculture.

The style of fishing practiced by Hmong people also seems to have a positive effect on the FRW. Hmong people tend to fish from shore, limiting negative impact on the watershed. Numerous participants also expressed that while they may fish for sport, consumption, or the social interaction it engenders, they also appreciate it for the exercise and communion with nature that it provides through finer-grained interaction (than, on a boat, for example), which has the potential to enhance the ecological conscience of people of the FRW. While multiple participants worried that Hmong anglers harvest too much fish from area rivers, there is no data on the effects of fishing on targeted species populations (e.g., white bass) and it could be argued that some Hmong are actually benefiting the watershed by removing problematic species (e.g., carp). The highly social, collective nature that persists in Hmong fishing practices may also provide lessons, given the importance of inclusion and crosscutting social ties to effective, sustainable conservation efforts. While they may largely produce strong ties and bonding capital in the FRW at this stage, other social capitals may be able to be enhanced and expanded through strategic efforts going forward.

Hmong emplacement in the FRW has produced greater levels of education, especially for Hmong women, which may also produce dividends for watershed management, as some of the

most fervent advocates for conservation in our sample were women, consistent with the historical overrepresentation of women and people of color in environmental justice movements. Interestingly, the fact that Hmong people are increasingly using the FRW in ways that are new in relation to Hmong traditions (such as through sport fishing, kayaking, or therapeutically), paired with increased environmental education, may also help to explain the desire for conservation on the part of some. As argued by Summers [23] in his history of environmentalism in the FRW, when groups of people reach a certain level of affluence and begin to see resources like rivers as amenities that exist for their own pleasure they may feel compelled to take action to protect them.

Several participants, however, expressed broader concern about animals and water quality, commonly describing the FRW as something they value due to the beauty and diversity of nature to which it provides access. They brought to life Aldo Leopold's [36] argument that for it to be successful, environmentalism must progress from ignorance of the ecology of places, to a respect for and understanding of their characteristics, to finally, a love for them and a commitment to their care. The latter describes his concept of ecological conscience, a conviction of individual responsibility for the health of the land, which he considered the foundation of the land ethic and key to successful conservation.

Indeed, many in the sample not only expressed a strong appreciation for various features of the FRW, but also a commitment to learning more about it and pursuing its conservation. Considering that prior to the war most Hmong people were not literate, this is an important shift resulting from their *emplacement* in the FRW, which has allowed Hmong people to build upon the strong environmental foundation that already characterized their culture. Numerous participants also advocated for additional Hmong signage that would provide both further education while fostering a sense of inclusion.

5. Conclusions

The *emplacement framework* has allowed us to examine how the social relationships, moral guidelines, and historical trajectories of identity and practice of a particular group in a particular place come together, and the implications of this conjunction. Like the people we describe here, the framework has proven adaptable; while additional papers could focus on any of the four elements alone, we believe that when examined together, these elements provide a continuity and context for the coupled social-ecological dimensions of watershed management, and support the incorporation of the sociological concept of social capitals for this particular analysis.

The strength of Hmong culture has persisted through tremendous loss and *displacement* to survive and evolve in a new landscape. Hmong people's *emplacement* in the FRW has afforded relatively widespread access to landscapes that yield substantial environmental goods providing recreation, social interaction, and food production, which enhance physical and mental health and augment household incomes. As noted, the educational opportunities and socialization in broader American culture afforded by Hmong *emplacement* here have helped to empower women and led to the emergence of a new generation of group members with formal ecological knowledge to add to their existing ethnobiological understanding and base of ecological conscience.

For these reasons and others discussed herein, conservation organizations, policy makers, departments of natural resources, and justice advocates should look to build linking capital between those in power and marginalized groups of various types, as has been explored regarding Native Americans [3,6,12], African Americans [3,12], and other marginalized people throughout the world [4,14]. The resulting linkages can provide ecological education that leads to deeper understanding and appreciation of watersheds. It can also yield increased power for marginalized groups, who can use that power to teach the powerful about other cultural practices and local knowledge, which should be considered in relation to land use policies and environmental regulations. Such entities should also evaluate and advocate for the inclusion of ethnic minorities as staff and volunteers in the field, and assess their level of visibility and effectiveness. Others may choose to

focus on community organizing such that marginalized people can more effectively represent their own interests and work on common ground with other groups, including in the environmental arena. Based upon the number of young, well-educated people in our sample who indicated that they are seeking environmental jobs, it should be possible to find Hmong land stewards in the FRW. Other watersheds likely contain similar overlooked and underutilized stakeholder groups, with potential to foster positive change through nuanced understanding of their *emplacement* and strategic effort to build bridging and linking capitals.

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